

Senate Energy & Telecomm. Comm.  
Exhibit No. 1  
Date 1-8-2009  
Bill No. Organizational Mtg.



## Pacific NorthWest Economic Region

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# Energy Horizon



## *Pacific NorthWest Economic Region*

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### Pacific NW Regional Bi-National Energy Planning Initiative

- Over 400 stakeholders met in Calgary in 2003 and provided clear guidance that Bi-national energy planning was needed. In particular these areas were of concern;
- Stove pipe planning across fuel types with differing data sets.
- Data sharing on resource availability – supply / demand of gas, petroleum, electricity
- Analysis of the feasibility of moving megawatts vs. BTU's
- Least cost corridor planning
- Unified permitting across jurisdictions



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### **2005-2006 Mapping Region's Massive Infrastructure Build out**

- A loaned executive from TransCanada Corporation works with PNWER to MAP regions massive energy Infrastructure build out.
- Over \$55 Billion in new projects in region in process. These are just projects of \$100 million or more in value.
- Audit of projects identifies crucial shortages of skilled workers to complete projects announced.



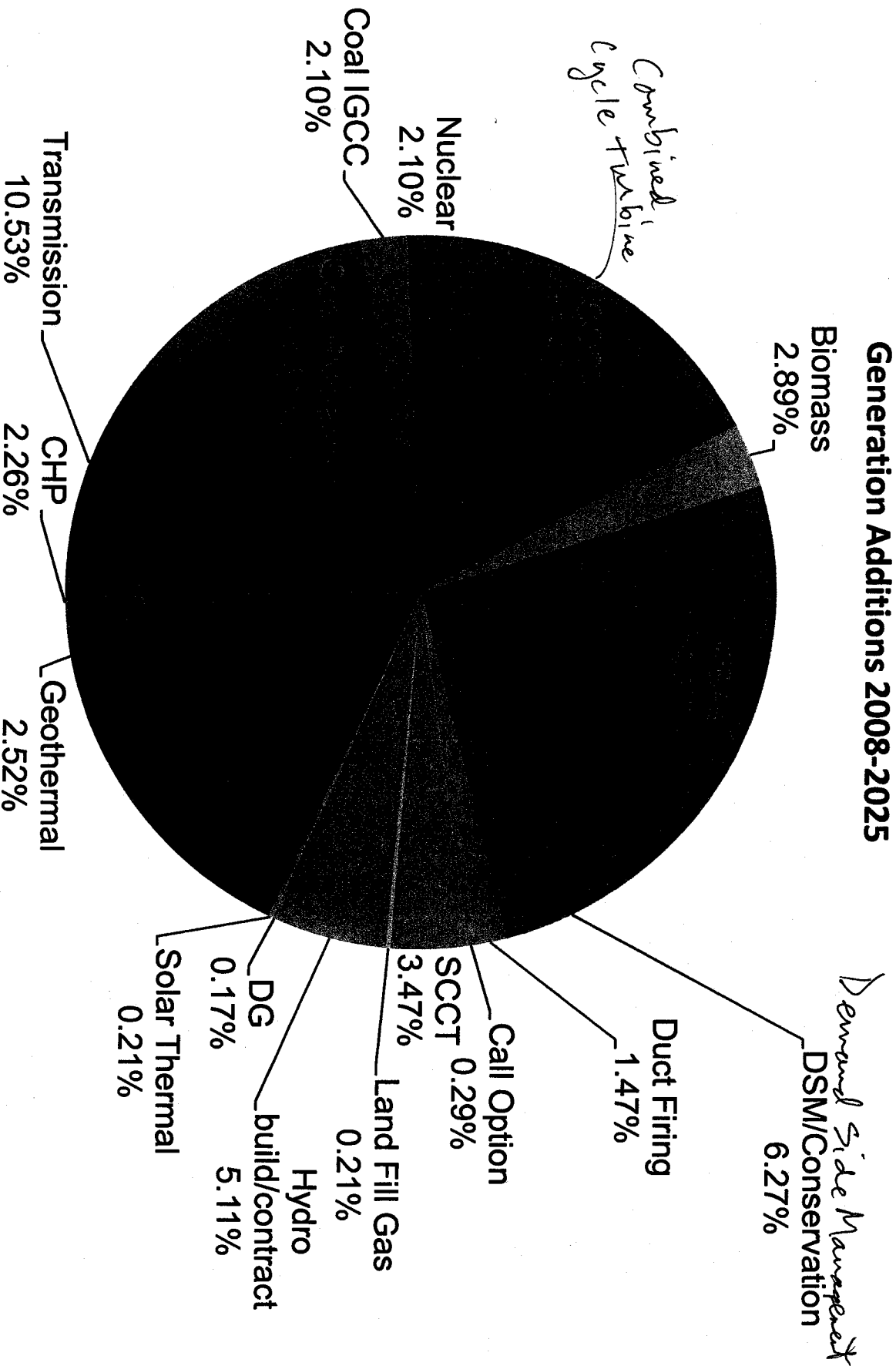
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### **2006-2007 Regional IRP Roll Up - First Issues on Horizon identified**

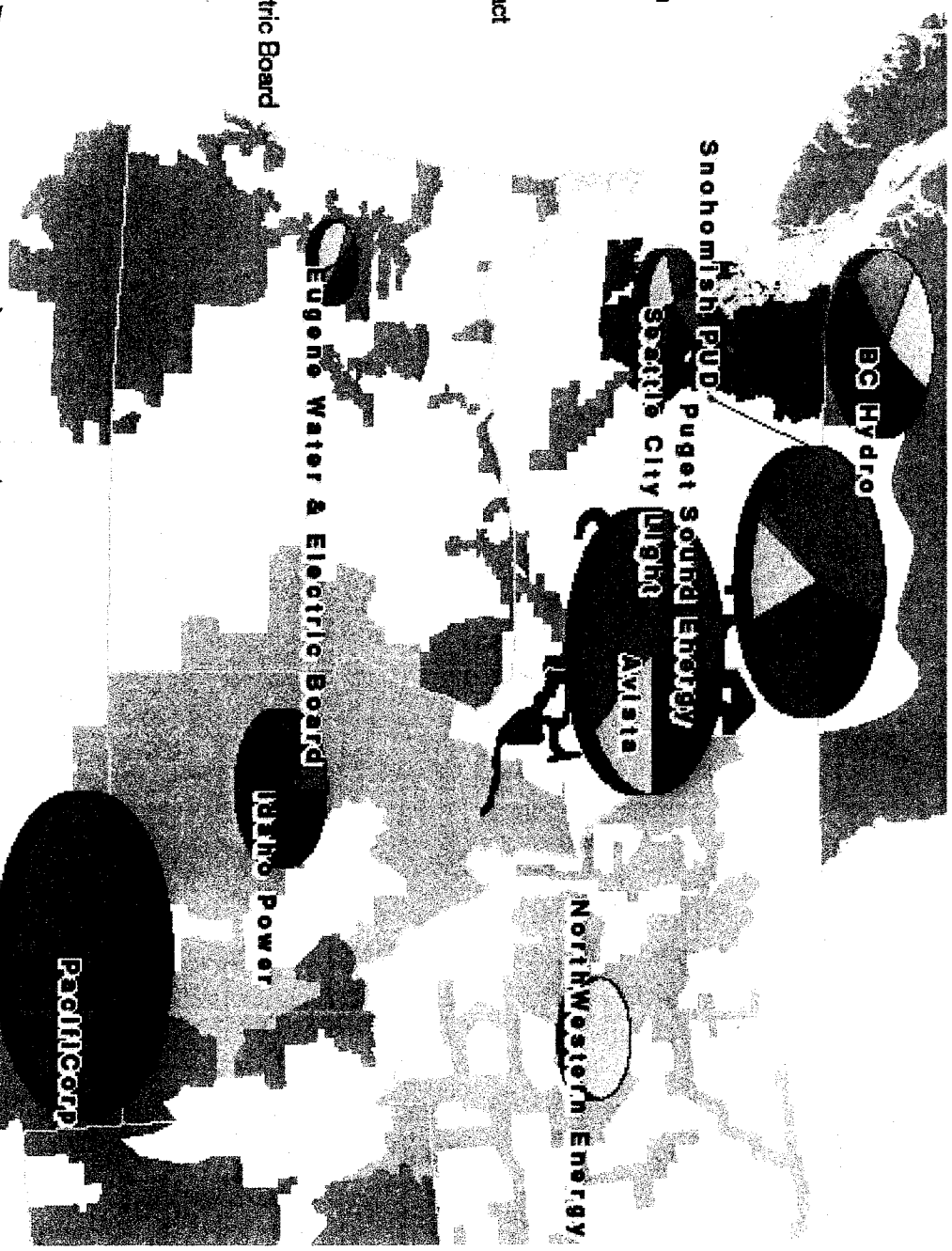
- Critical transmission projects are identified that unlock numerous resources in region.
- Numerous wave and tidal projects in process in region but not one in an existing IRP. ACTION-Bring together IRP planners and Wave Tidal Developers to get hard numbers for delivered power to planners.
- Concern over amount of Power Bridging Contracts between 2009-2012 in region.

# PNWER's Energy Horizon IRP Roll-up 7/1/2007 Generation Additions 2008-2025



CCGT - No Firm wind

- ☐ Geothermal
  - ☐ CHP
  - ☐ Transmission
  - ☐ Coal Pulverized
  - ☐ Coal IGCC
  - ☐ Nuclear
  - ☐ CCGT
  - ☐ Biomass
  - ☐ PBAs
  - ☐ DSM/Conservation
  - ☐ Duct Firing
  - ☐ Call Option
  - ☐ SCCT
  - ☐ Land Fill Gas
  - ☐ Hydro Build/Contract
  - ☐ DG
  - ☐ Solar Thermal
- Service Areas**
- NAME**
- ☐ Avista Utilities
  - ☐ BC Hydro
  - ☐ Eugene Water & Electric Board
  - ☐ Idaho Power
  - ☐ NorthWestern Energy
  - ☐ PacifiCorp
  - ☐ Puget Sound Energy
  - ☐ Seattle City Light
  - ☐ Snohomish PUD



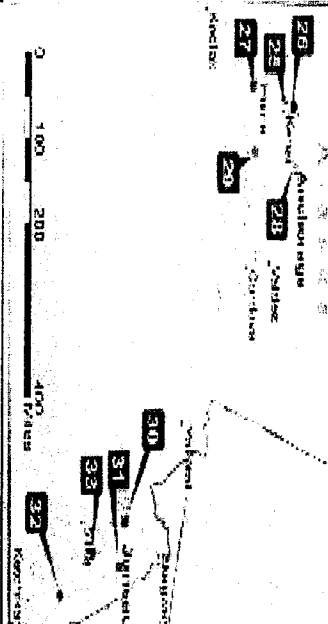
New Resources - for new Demand up to 2020



**PNWER - Energy Horizon**

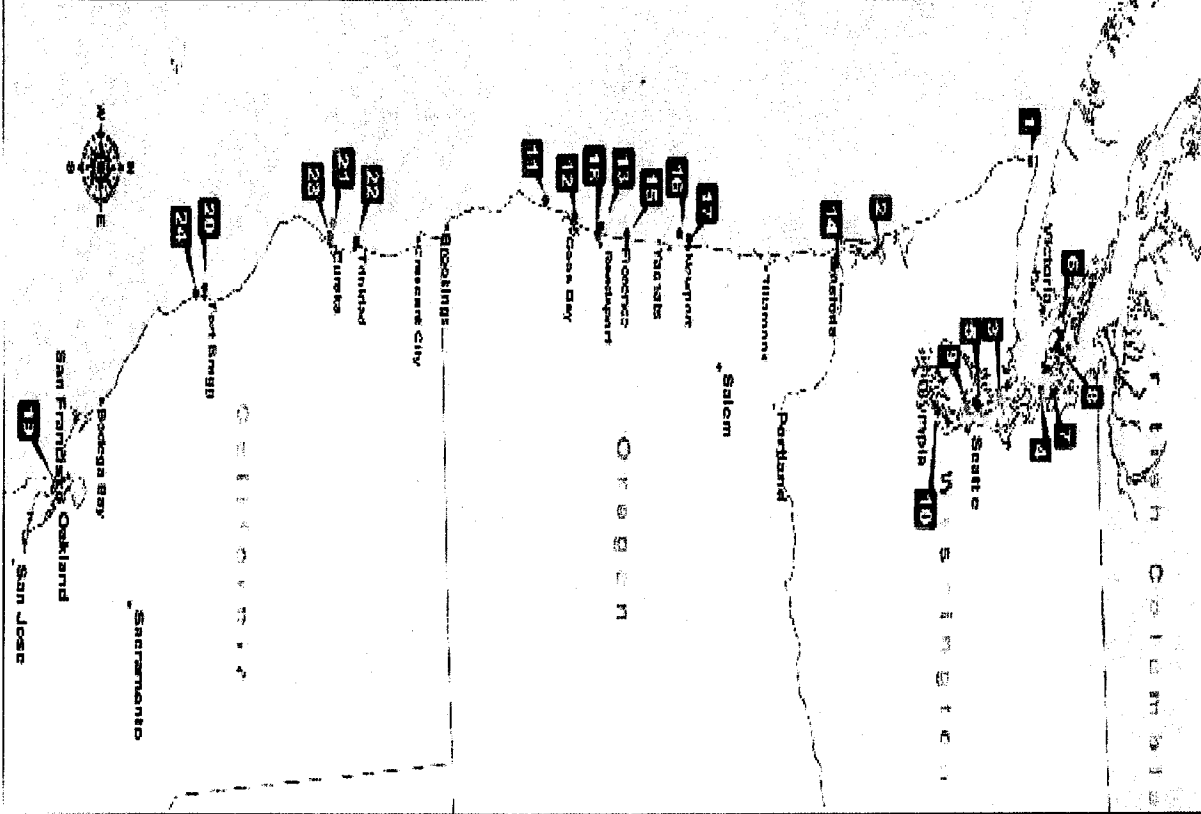
Advised by the  
Energy Commission  
of the State of Washington  
March 2000

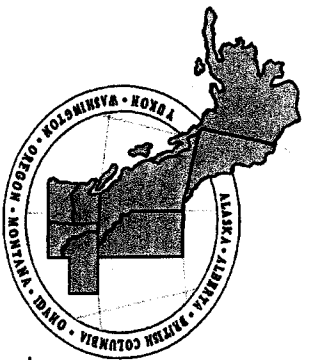
For more information on  
PNWER, contact:  
David G. Smith, Director  
Energy Commission  
3600 University Avenue, NW  
Seattle, WA 98105  
Phone: (206) 462-2000  
Fax: (206) 462-2001  
Web: www.pnwer.com



## Proposed Wave and Tidal Energy Projects\*

		DAIS-3
1	Neah-Kahle Offshore Wave Energy Pilot Project	A-125252
2	Willapa Bay Tidal Energy Plant Winter Power Project	A-125252
3	Admiralty Inlet Tidal Energy Project	A-125260
4	Diepvoort Pass Tidal Energy Project	A-125274
5	Astoria Passage Tidal Energy Project	A-125274
6	Spalding Channel Tidal Energy Project	A-125289
7	Quinn's Channel Tidal Energy Project	A-125289
8	Sam Allen Channel Tidal Energy Project	A-125289
9	Rich Passage Tidal Energy Project	A-125289
10	Tecoma Narrows Tidal Energy Project	A-125289
11	Clatsop County Wave Project	A-125289
12	Coos Bay Opt Wave Project	A-125289
13	Reedport Opt Wave Energy Project	A-125289
14	Columbia Tidal Energy Project	A-125289
15	Florence Wave Energy Project	A-125289
16	Nemah Opt Wave Energy Project	A-125289
17	Lincoln County Wave Energy Research & Demonstration Center	A-125289
18	Douglas County Wave Energy Project	A-125289
19	Star Pt. Astoria Bay Tidal Energy Project	A-125289
20	Menemloa WaveConnect Project	A-125289
21	Humboldt WaveConnect Project	A-125289
22	Humboldt County Wave Project	A-125289
23	Fort Stevens Opt Wave Power Project	A-125289
24	Menemloa Wave Energy Project	A-125289
25	Coos Inlet Tidal Energy Project	A-125289
26	Central Coos Inlet Tidal Energy Project	A-125289
27	Kickcomok Bay Tidal Energy Project	A-125289
28	Coos Inlet Tidal Energy Project (2001)	A-125289
29	Reconstruction Bay Tidal Energy Project	A-125289
30	Bay Passages Tidal Energy Project	A-125289
31	Geoffrey Channel Tidal Energy Project	A-125289
32	Marshall Structures Tidal Energy Project	A-125289
33	Marshall Tidal Energy Project	A-125289





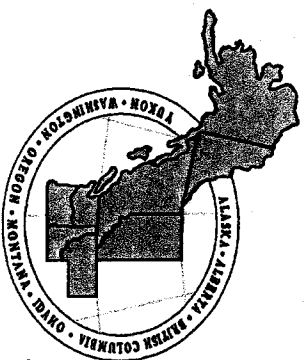
## *Pacific NorthWest Economic Region*

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### Actions

- ACTION-Brought together IRP planners and Wave /Tidal Developers to get hard numbers for delivered power to utility planners.
- ACTION -Idaho National Laboratory completed study on the cost of not building transmission for policy makers. (Handout)
- ACTION – PNWER work groups focus regional discussion on work force mobility for trades workers and regional reciprocity for certification of engineers.





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### Cost of Not Building Transmission Findings

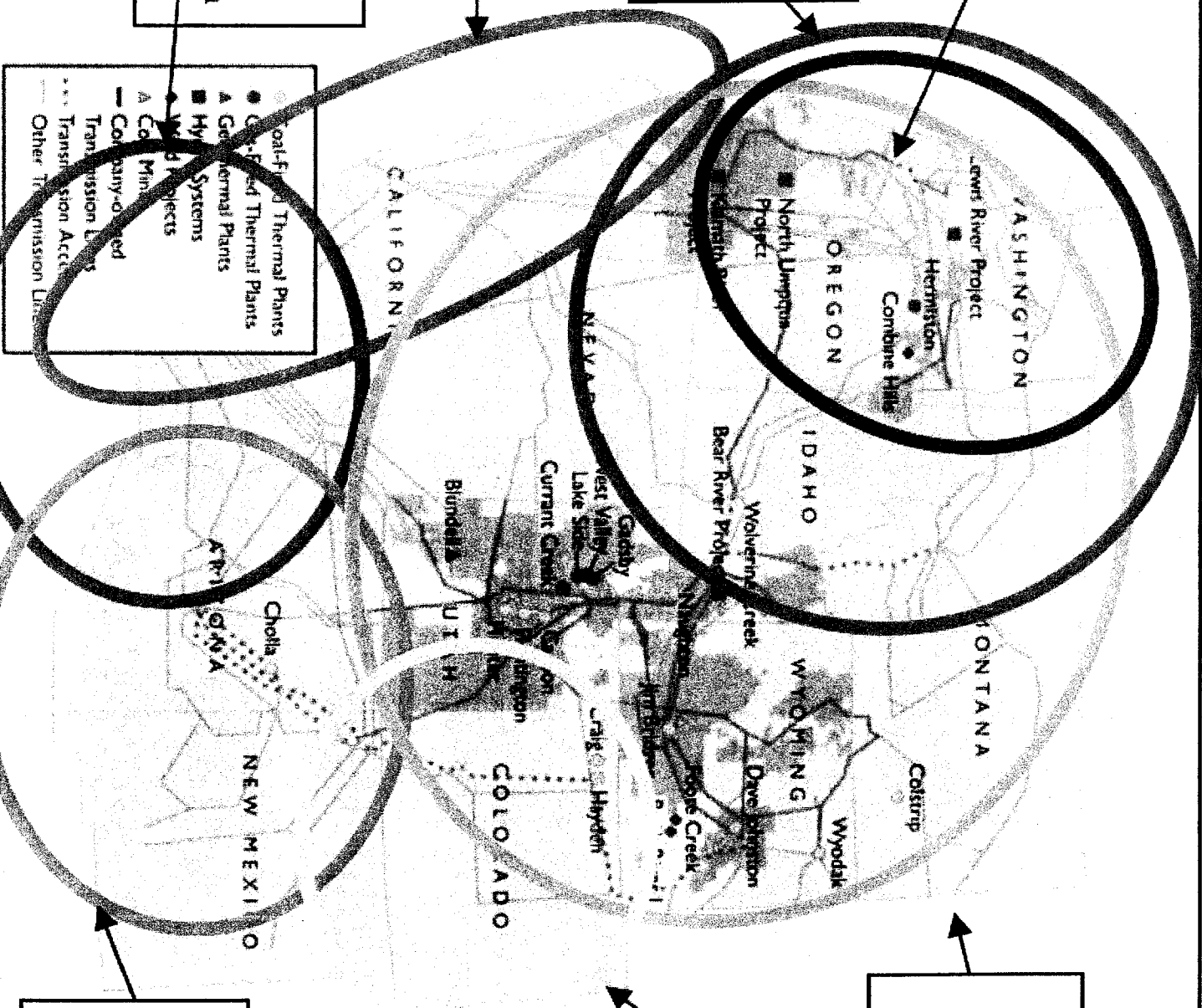
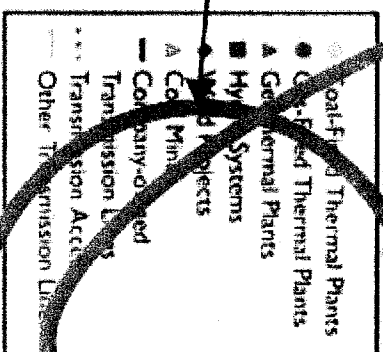
- The model indicates that the PNWER region has a potential economic loss of \$15B to \$25B annually and 300,000 to 450,000 jobs over 30 years if just the one infrastructure transmission line project with the greatest economic impact is not built (i.e., BC to NorCal).
- Upwards of \$55B to \$85B annually and 1,750,000 jobs over 30 years if the five transmission line projects of greatest economic impact are not built (i.e., Alberta to PacNW Project, BC to NorCal, Gateway West, Southern Xing & I-5 Corridor Projects, and Mountain States Inter tie).

**CG**  
Columbia  
Grid

**NTAC**  
Northwest Transmission  
Assessment Committee

**CA**

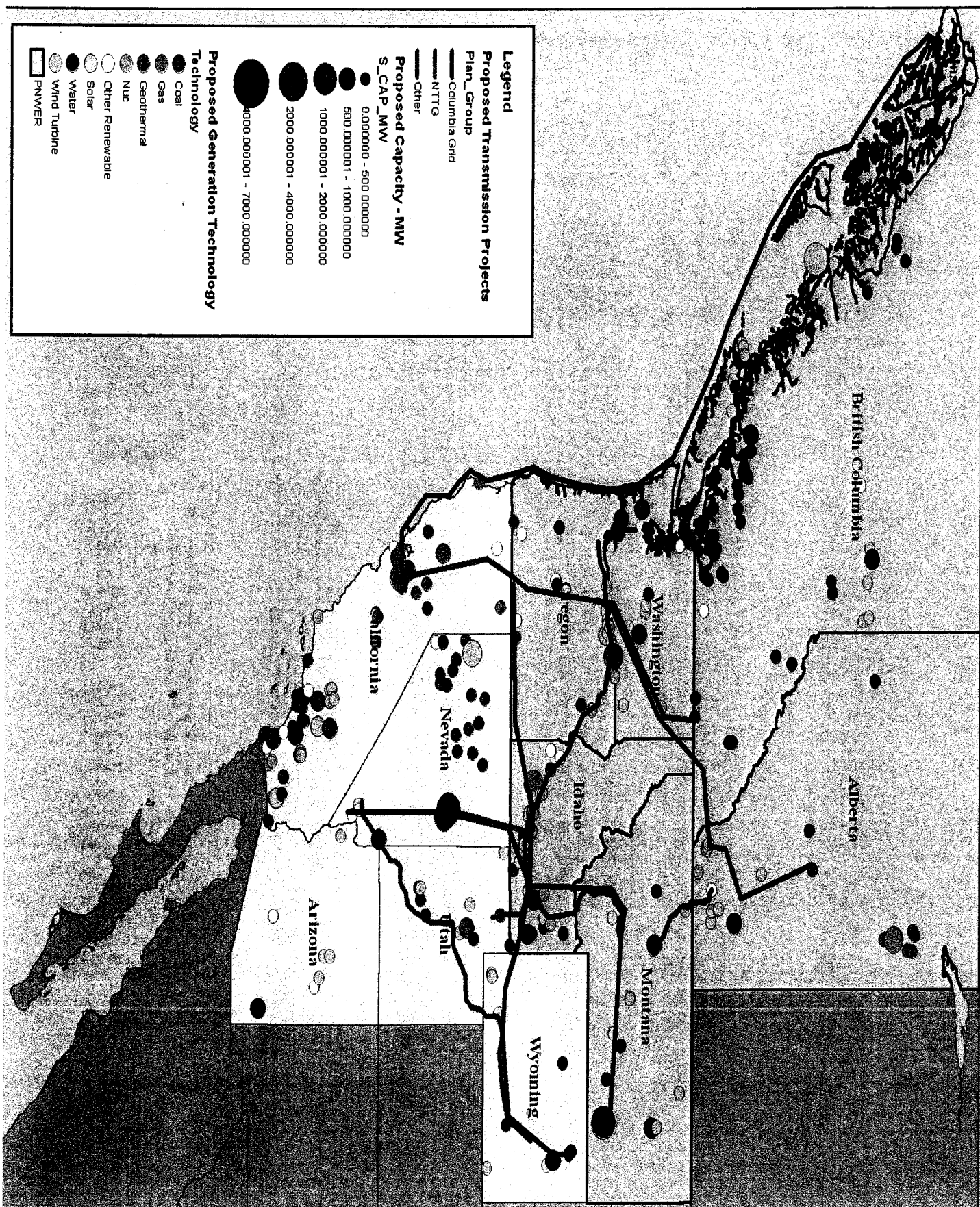
**STEP**  
Southwest Transmission  
Expansion Planning

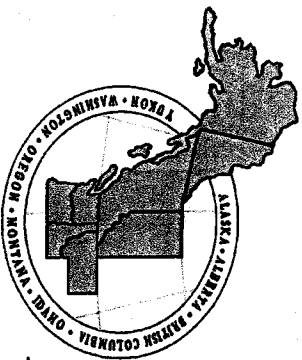


**NTTC**  
Northern Tier  
Transmission Group

**CCP**  
Colorado Coord  
Planning Group

**SWA**  
Southwest Area  
Transmission Study



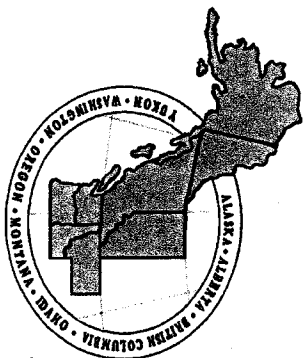


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## 2007-2008 Region's Energy Chairs/Private Sector define next phase of work.

- Assess the best use of natural gas infrastructure for electricity generation (i.e. base load, peaking load and firming renewable.)
- Establish an annual Regional Energy Institute for legislative Energy Committee members across the region.
- Continue graphic portrait of actual versus theoretical results between integrated resource planning and actual proposals for power.
- Examine ability for stakeholders to measure "what if" questions with the interactive graphical interface.

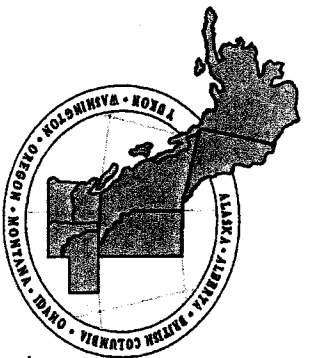


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### **Current status of Work**

- **Energy Horizon Institute** - USDOE has made a verbal commitment to sponsor this project @\$60,000 usd. A partnership has been arranged with NCSL to start this as PNWER region effort and take it National via NCSL in future years. The University of Idaho (U of I) has an internationally recognized certificate program for utility executives that is exactly the course content we are looking for this certificate program. (see hand out for more detail)
- The Northwest Gas Association and the Pacific Northwest Utilities Conference Committee are pursuing the study of "*Best use of natural gas infrastructure for electricity generation*" with PNWER's Energy Horizon project. (i.e. base load, peaking load and firming renewable).



## *Pacific NorthWest Economic Region*

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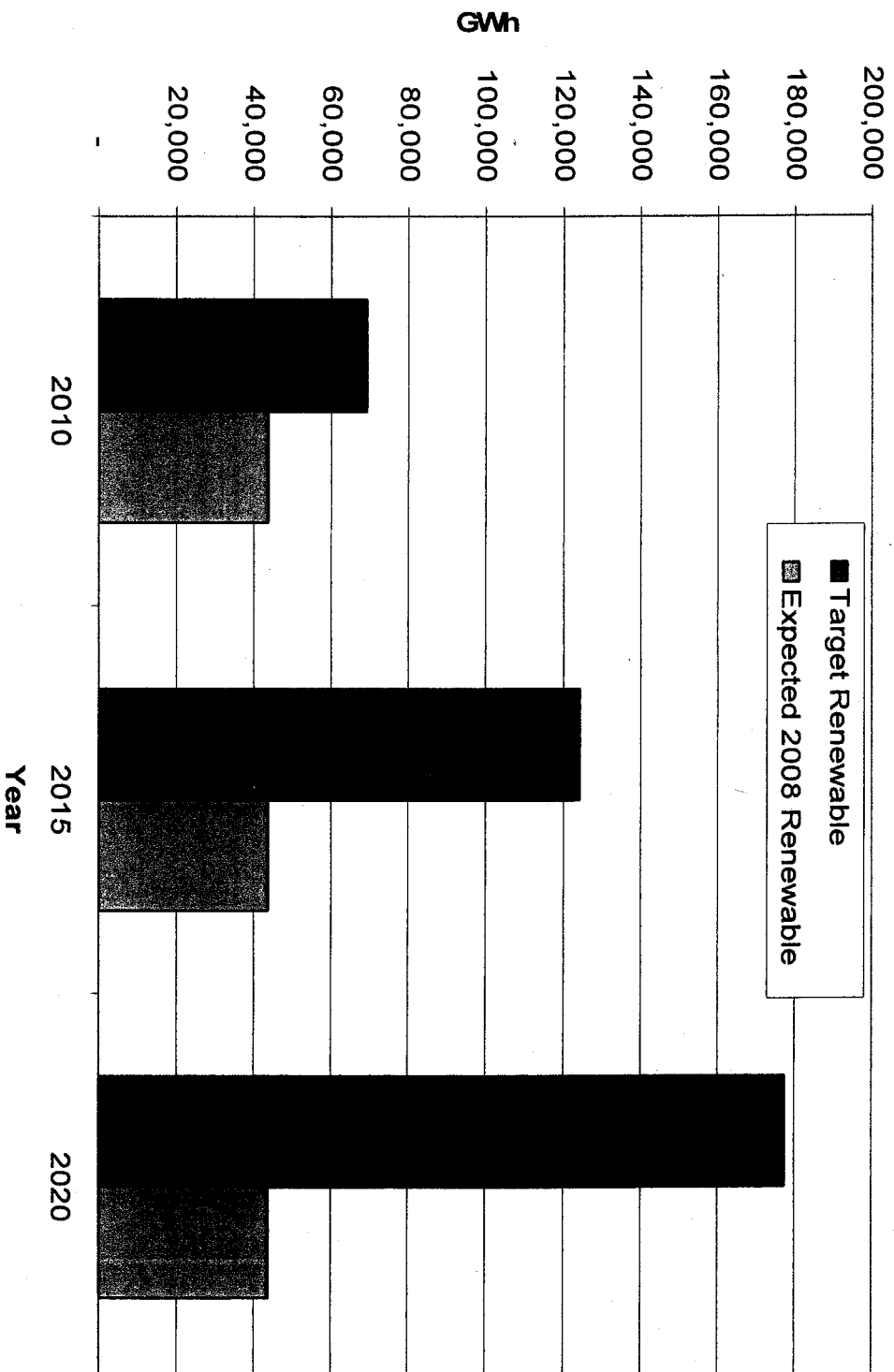
### **Emerging Regional Issues**

- Risk of market spikes caused by uncoordinated mandates, i.e. RPS and Climate Change Mandates.
- Transmission critical for immediate mandates.
- Lack of knowledge of policy makers of infrastructure.
- Boutique standards for RPS mandates.
- Pancaking of climate change taxes.
- Lack of coordinated State or Regional Strategy on new energy technologies.
- Regional standards for interconnection lacking.
- Credit situation not forecasted in projections.
- Lack of “what if?” policy planning tool for regions policy makers.

# WECC RPS Mandates

State	2010	2015	2020
BC	N/A	N/A	N/A
Alberta	N/A	N/A	N/A
Washington	0	3%	15%
Montana	10%	15%	15%
Oregon	0	15%	20%
Idaho	0	0	0
Wyoming	0	0	0
California	20%	26%	33%
	Must atleast +1% per Year		
Nevada	12%	20%	20%
Utah	0	0	0
Colorado	5%	15%	20%
Arizona	2.50%	5%	10%
New Mexico	0	15%	15%

# Renewables...WECC wide: Goals vs. Current





# Carbon Cost

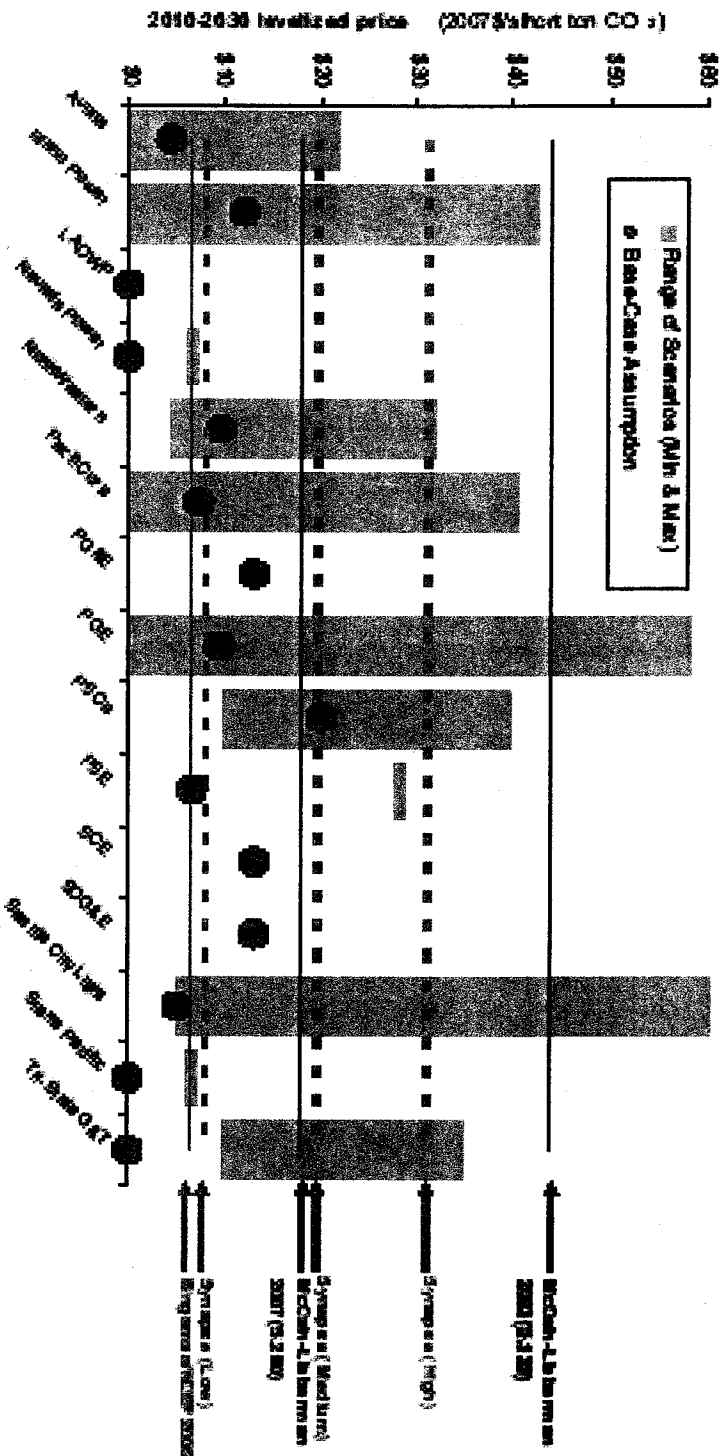


Figure ES-1. Levelized CO<sub>2</sub> Emission Prices Used in Utility Resource Plans (2010-2030)

Notes: See Table A-3 in the appendix for notes on conventions and assumptions used to construct the figure.



## *Pacific NorthWest Economic Region*

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**For more information or to join the regional dialogue**  
**[www.pnwersenergyhorizon.com](http://www.pnwersenergyhorizon.com)**

## PNWER Leadership 2008-2009



Hon. John van Dongen  
President  
British Columbia



State Sen. Lesil McGuire  
Vice President  
Alaska



Hon. Mel Knight  
Vice President  
Alberta



State Rep. Mike Schaufler  
Vice President  
Oregon



Mr. Michael Chisholm, MLA  
Vice President  
Saskatchewan



State Rep. George Eskridge  
Imm. Past President  
Idaho



Hon. Jim Kenyon  
Past President  
Yukon Territory

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Hon. John van Dongen  
British Columbia

#### Vice President US

State Sen. Lesil McGuire  
Alaska

#### Vice President Canada

Hon. Mel Knight  
Alberta

#### Vice President, US

State Rep. Mike Schaufler  
Oregon

#### Vice President, Canada

Mr. Michael Chisholm, MLA  
Saskatchewan

#### Imm. Past President

State Rep. George Eskridge  
Idaho

#### State Sen. Kim Gillan

Montana

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Washington

Hon. Rob Renner

Alberta

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Alaska

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Idaho

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Alberta

State Sen. Alan Bluechel  
Washington (Ret.)

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Canada Co-Chair

Jan Romerdahl, US Bank  
US Co-Chair

Don Dalik  
Fasken Martineau & DuMoulin, LLP  
BC Private Sector Chair

Executive Director  
Matt Morrison

\*Partial List

### Delegate Council

#### Alaska

Governor Sarah Palin  
State Sen. Fred Dyson  
State Sen. Lesil McGuire  
State Rep. John Coghill  
State Rep. Bryce Edgmon

#### Alternates:

State Sen. Charlie Huggins  
State Rep. Andrea Doll  
State Rep. Peggy Wilson

#### Alberta

Premier Ed Stelmach  
Dave Coutts, MLA  
Kyle Fawcett, MLA  
Hon. Mel Knight  
Richard Marz, MLA  
Len Mitzel, MLA

#### British Columbia

Premier Gordon Campbell  
Harry Baines, MLA  
Hon. Joan McIntyre  
Hon. Mary Polak  
Michael Sather, MLA  
Hon. John van Dongen

#### Idaho

Governor C. L. "Butch" Otter  
State Rep. George Eskridge  
State Sen. John Goedde  
State Sen. Clint Stennett  
State Rep. Mary Lou Shepherd

#### Alternates:

State Sen. Monty Pearce  
State Rep. John "Bert" Stevenson

#### Montana

Governor Brian Schweitzer  
State Sen. Aubyn Curtiss  
State Sen. Kim Gillan  
State Rep. George Everett  
State Rep. Wanda Grinde

#### Oregon

Governor Ted Kulongoski  
State Rep. Vicki Berger  
State Sen. David Nelson  
State Rep. Paul Holvey  
State Rep. Mike Schaufler

#### Saskatchewan

Premier Brad Wall  
Michael Chisholm, MLA  
Hon. Bill Boyd

#### Washington

Governor Chris Gregoire  
State Sen. Paul Shin  
State Rep. Glenn Anderson  
State Rep. Deb Wallace

#### Alternates:

State Sen. Tim Sheldon  
State Rep. Maralyn Chase

#### Yukon

Premier Dennis Fentie  
Hon. Jim Kenyon  
Hon. Marian Horne  
Steve Nordick, MLA

**Bold = PNWER Officers**

### Private Sector Council

Canada Co-Chair: Neil Windsor, APEGGA — US Co-Chair: Jan Romerdahl, US Bank

#### Alaska

Bruce Carr, Alaska Railroad  
Ken Freeman, ExxonMobil  
Paul Quesnel, BP

#### Alberta

Neil Windsor, APEGGA  
Greg Moffatt, TransCanada Pipelines  
Tim Boston, EPCOR  
Duane Lyons, AltaLink

#### British Columbia

Don Dalik, Fasken, Martineau & DuMoulin, LLP  
Greg Thomas, PriceWaterhouseCoopers  
Sarah McCullough, Spectra Energy Transmission  
Jock Finlayson, Business Council of BC

#### Idaho

Dean Haagenson, Contractors Northwest  
Evan Hayes, Idaho Grain Producers  
Gary Fuhrman, Idaho Farm Bureau Federation

#### Montana

Haley Beaudry, Columbia Falls Aluminum Co.

#### Oregon

Scott Farris, TransCanada Pipelines  
James Baumgartner, Black Helderline, LLP  
Charles Hall, INOVXCO  
Tom Lowles, Key Bank

#### Washington

Jan Romerdahl, US Bank  
William Kidd, BP  
Jerry Cochran, Microsoft  
Bill Struyk, Johnson and Johnson  
Ken Johnson, Puget Sound Energy

#### Yukon

Don Pumphrey, NorthwTel



# *Pacific Northwest Economic Region*

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## **Energy Horizon Initiative**

PNWER's Energy Horizon Project is in its 5<sup>th</sup> year, and has been guided by the Legislative Energy Chairmen of the states of AK, WA, ID, MT, and Oregon; and the Energy Ministers of BC, Alberta, and the Yukon. The project is unique in that it uses individual Integrated resource plans from energy providers in a bottom up as opposed to government top down approach to see into our energy future and that it is also the first regional approach that follows traditional routes of trade and infrastructure as opposed to arbitrary geographic and political splits across the entire bi-national region.

The Energy Horizon Project also includes private sector sponsors that own the majority of the energy infrastructure that offer insight with northwest policy makers to define critical regional issues. The project work shows its value in their participation in the effort.

This year the project analysis showed that there will be over 2000 MW of power scheduled to be purchased on 'power bridging agreements' or short term power contracts between 2010 and 2013; and a tremendous amount of access to renewable resources is dependent on new transmission coming online between 2010 and 2013. The two of these taken together are important issues for policymakers, and could impact energy prices throughout the region.

Our analysis also identified over 32 wave and tidal projects under some form of permitting in the region yet not one wave or tidal project was identified in an IRP in the entire region out past 2025.

With US Department of Energy funding in 2007-2008 a study was commissioned to identify "The Cost of Not Building Transmission" in the Pacific Northwest. This study can viewed at this link [http://www.pnwenergyhorizon.com/files/PNWERReport\\_Rev2c\\_Final\\_16Jul08\\_ntwtm3.pdf](http://www.pnwenergyhorizon.com/files/PNWERReport_Rev2c_Final_16Jul08_ntwtm3.pdf). **For the first time energy policy makers in the Pacific Northwest can identify the most crucial 15 transmission projects, track their progress, and know the economic cost if the project are not completed.**

The Study also opened many other questions. The Idaho National Lab (INL) which did the study included a list of recommended follow up studies. Over 180 policy makers and infrastructure owners attended the briefing on this study and followed the Energy Horizon sessions at our annual Summit this past summer.

In consultation with the region's energy Chair or designees and our private sector partners, we have identified several areas of important work tasks or project for 2009.

In 2009 PNWER's Energy Horizon Initiative will launch the first "Legislative Energy Horizon Institute" which will select 35 key state and provincial legislators in the region and provide a curriculum designed for emerging legislative energy leaders in energy policy. PNWER is working with the US DOE, the National Conference of State Legislators (NCSL), and the University of Idaho to create an Energy Policy curriculum and certification program.

The Energy Ministers and Legislative Energy Chair task force in 2009 will be asked to help select 3 or 4 legislators from each state and province to be part of the first PNWER Energy Institute.

## **PNWER Legislative Energy Horizon Institute**

This certificate program is designed for state legislators who need intensive exposure as to how North American energy infrastructure delivers energy to consumers. A large disconnect often exists between those that make state energy policy and a comprehensive understanding of how our infrastructure actually operates. High turnover in citizen state legislative bodies has decreased the institutional knowledge of complex energy issues in our state and provincial legislatures. Issues such as awareness of the protocols that electricity, natural gas, and petroleum infrastructures utilize, and, knowledge on timelines needed to construct new infrastructure within current regulations are just some of the areas that legislators must understand to make responsible and informed policy decisions. The increasingly complex interdependencies of our energy infrastructures in delivering energy to consumers is also important for policymakers to fully understand.

Creation of the PNWER Legislative Energy Institute will result in a corps of legislators who will have knowledge of how the energy system works throughout the region. Caucuses and legislatures will have the insight of these individuals bringing an increased understanding of how the complex energy system works as well as some knowledge of infrastructure and costs and timelines. In addition, by working together across jurisdictional boundaries to understand our energy system in the Pacific Northwest, policymakers will be able to forge relationships that are necessary in addressing multi-state energy infrastructure and policy issues.

Thirty five legislators who are committed to energy policy in their legislative service will be selected every two years for the eighteen month certificate program in energy policy planning awarded from PNWER's Energy Institute and the University of Idaho. The certificate program will be executed through three intensives, one 4 day intensive during the summer, a 2 ½ day program during NCSL's legislative forum in the fall, and a final 2 ½ day session which will include meetings with Federal regulators during NCSL's spring Washington, DC meeting. The program will also include monthly webinars and background curriculum materials.

PNWER in partnership with NCSL and with support from the US Department of Energy has teamed up with the University of Idaho Utility Executive Course (UEC) which engages the utility industry's best leaders from diverse business backgrounds in a dynamic interchange of knowledge, insight, and expertise. UEC has earned a worldwide reputation as the premier industry-driven executive education program designed specifically for utility leaders.

The 2009 Legislative Sessions will be the first time this program has been offered.